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TITLE: Benzoxazolone derivatives, processes for preparation thereof and compositions containing them

**BSPR:**

The group R in general formula (IV) is as defined hereinabove. The compound of formula (IV) in which R is hydrogen atom is known as described in U.S. Pat. No. 2,922,794. This compound can be alkylated or acylated in a conventional way to produce the corresponding N-substituted compound of formula (II). As the chlorinating agent (V), there can be used chlorine itself or sulfonyl chloride alone or combinations of hydrochloric acid and an oxidizing agent such as bleaching powder, potassium chlorate or manganese dioxide.

**BSPR:**

In Scheme B, the chlorination reaction is usually carried out in a solvent and at an elevated temperature to accelerate the reaction in the case where the chlorination is effected with chlorine or sulfonyl chloride. The solvent which may be used in that case includes water, acetic acid and halogenated hydrocarbons. If the halogenation is conducted using a combination of hydrochloric acid and an oxidizing agent such as bleaching powder, potassium chlorate or manganese dioxide, then the compound (IV) may be dissolved in the acid with subsequent addition of the powder of the oxidizing agent or a concentrated aqueous solution thereof. A solvent such as acetic acid may, if necessary, be used.

**BSPR:**

The compounds of the invention are active not only to combat the fungal and bacterial diseases as mentioned above in the agricultural and horticultural applications but also to control the growth of various fungi and bacteria being capable of deteriorating industrial materials. Thus, where the compounds are applied to general industrial products such as paint, wood, paper, pulp, textiles, cosmetics, leathers, ropes, plastics, rubbers and adhesives, it is possible to prevent the products from deterioration or decay which may otherwise be caused by the fungi and bacteria.

**BSPR:**

carbamate fungicides such as 3,3'-ethylenebis (tetrahydro-4,6-dimethyl-2H-1,3,5-thiadiazine-2-thione), zinc or manganese ethylenebis(dithiocarbamate), bis (dimethyldithiocarbamoyl)disulfide, zinc propylenebis (dithiocarbamate), bis(dimethyldithiocarbamoyl) ethylenediamine, nickel dimethyldithiocarbamate, methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate, 1,2-bis(3-methoxycarbonyl-2-thioureido)benzene, 1-isopropylcarbamoyl-3-(3,5-dichlorophenyl)hydantoin, potassium N-hydroxymethyl-N-methyldithiocarbamate and 5-methyl-10-butoxycarbonylamino-10,11-dehydrodibenzo (b, f)azepine; pyridine fungicides such as zinc bis(1-hydroxy-2(1H) pyridinethionate) and 2-pyridinethiol-1-oxide sodium salt; phosphorus fungicides such as O,O-diisopropyl S-benzylphosphorothioate and O-ethyl S,S-diphenyldithiophosphate; phthalimide fungicides such as N-(2,6-diethylphenyl)phthalimide and N-(2,6-diethylphenyl)-4-methylphthalimide; dicarboxyimide fungicides such as N-trichloromethylthio-4-cyclohexene-1,2-dicarboxyimide and N-tetrachloroethylthio-4-cyclohexene-1,2-dicarboxyimide; oxathine fungicides such as 5,6-dihydro-2-methyl-1,4-oxathine-3-carboxanilide-4,4-dioxide and 5,6-dihydro-2-methyl-1,4-oxathine-3-carboxanilide, naphthoquinone fungicide such

as 2,3-dichloro-1,4-naphthoquinone, 2-oxy-3-chloro-1,4-naphthoquinone copper sulfate; pentachloronitrobenzene; 1,4-dichloro-2,5-dimethoxybenzene; 5-methyl-S-triazol(3,4-b)benzthiazole; 2-(thiocyanomethylthio)benzothiazole; 3-hydroxy-5-methylisooxazole; N-2,3-dichlorophenyltetrachlorophthalamic acid; 5-ethoxy-3-trichloromethyl-1,2,4-thiadiazole; 2,4-dichloro-6-(O-chloroanilino)-1,3,5-triazine; 2,3-dicyano-1,4-dithioanthraquinone; copper 8-quinolate; polyoxine; varidamycin; cycloheximide, iron methanearsonate; diisopropyl-1,3-dithiolane-2-iridene malonate; 3-allyloxy-1,2-benzisothiazol-1,1-dioxide; kasugamycin; Blasticidin S; 4,5,6,7-tetrachlorophthalide; 3-(3,5-dichlorophenyl)-5-ethenyl-5-methyloxazolizine-2,4-dione; N-(3,5-dichlorophenyl)-1,2-dimethylcyclopropane-1,2-dicarboxyimide; S-n-butyl-5'-para-t-butylbenzyl-N-3-pyridyldithiocarbonylimide; 4-chlorophenoxy-3,3-dimethyl-1-(1H,1,3,4-triazole-1-yl)-2-butanone; methyl-D,L-N-(2,6-dimethylphenyl)-N-(2'-methoxyacetyl)alaninate; N-propyl-N-[2-(2,4,6-trichlorophenoxy)ethyl]imidazol-1-carboxamide; N-(3,5-dichlorophenyl)succinimide; tetrachloroisophthalonitrile; 2-dimethylamino-4-methyl-5-n-butyl-6-hydroxypyrimidine; 2,6-dichloro-4-nitroaniline; 3-methyl-4-chlorobenzithiazol-2-one, 1,2,5,6-tetrahydro-4H-pyrrolo-[3,2,1-i,j]quinoline-2-one; 3'-isopropoxy-2-methylbenzanilide; 1-[2-(2,4-dichlorophenyl)-4-ethyl-1,3-dioxorane-2-ylmethyl]-1H,1,2,4-triazol-5-ol; 1,2-benzisothiazoline-3-one; basic copper chloride; basic copper sulfate; N'-dichlorofluoromethylthio-N,N-dimethyl-N-phenylsulfamide; ethyl-N-(3-dimethylamino-propyl)thiocarbamate hydrochloride; piomycin; S,S-6-methylquinoxaline-2,3-diylldithiocarbonate; complex of zinc and maneb; dizinc bis(dimethyldithiocarbamate) ethylenebis(dithiocarbamate).

DETL:

TABLE 17		Activity against	
Pseudoperonospora cubensis	Mixed Fungicides	Dis-	Single Fungicide (B) Concen-
ease Concen-	Disease	tration Con-	tration Control Rate trol Chemical (ppm) (%) A
+ B (%)			
25 78 4-	cyclohexene-1,2- dicarboximide	Tetrachloro-	" 35 25 + 25 86
isophthalonitrile	Manganese ethylenebis	" 38 25 + 25 87	(dithiocarbamate) Zinc
complex of "	32 25 + 25 84 manganese ethylenebis	(dithiocarbamate)	Dizinc
bis(dimethyl-	" 33 25 + 25 83 dithiocarbamate	ethylenebis(dithio-	carbamate)
Basic copper chloride	50(as Cu) 29 25 + 50 85	Basic copper sulfate	50(as Cu) 24
25 + 50 81	Copper 8-hydroxy-	50 28 25 + 50 78	quinolate Methyl DL-N--(2,6- 5 38
25 + 5 87	dimethylphenyl)-N-- (2'-methoxyacetyl) alanilate	Ethyl	
N--(3-dimethylamino-	10 30 25 + 10 80	propyl) thiocarbamate hydrochloride	